HYBRID SEARCH MEMORY FOR NETWORK PROCESSOR AND COMPUTER SYSTEMS

ABSTRACT

A data structure, system and method of searching the data structure are disclosed. The system includes a data structure having a Direct Table (DT), Patricia-Trees, Pointers and high speed storage systems such as Contents Address Memory (CAM). The DT has a plurality of entries with each one coupled to a Patricia Tree having multiple nodes coupled to leaves. The number of Nodes, termed a threshold, that can be traversed to obtain information in the leaves is limited to a predetermined value. Once the threshold is reached a pointer indicates the address of the CAM and the address of the leaves is stored in the CAM. By using the disclosed structure and method the latency associated with tree search is significantly reduced.